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10/571,286

12/26/2006

Robert Weinmann

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
LLP

901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

EXAMINER

MALEKZADEH, SEYED MASOUD

ART UNIT

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1791

MAIL DATE

DELIVERY MODE

02/19/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--|---|--|
| Office Action Summary | Application No. 10/571,286 | Applicant(s) WEINMANN, ROBERT | |
| | Examiner SEYED M. MALEKZADEH | Art Unit 1791 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 November 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Claims 1-14 and 16 are pending.

Claim 15 is cancelled.

In view of the amendment, filed on 11/04/2008, following rejections are withdrawn from the previous office action for the reason of record.

- Rejection of claims 1-6 and 8-14 under 35 U.S.C. 103(a) as being unpatentable over Hehl (US 4,863,368) in view of Hehl (US 5,007,816)
- Rejection of claims 7 and 16 under 35 U.S.C. 103(a) as being unpatentable over Hehl (US ' 368) in view of Hehl (US '816) and further in view of Hehl (US 5,622,737)

New Grounds of Rejection

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **1-14 and 16** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 9, and 13 recite “**a drive block** disposed in **a rear section** of the injection unit, wherein **the rear section** further comprises **a vertical adjustable support**” (see lines 6-7) and further recites “**a rear section** of the drive block is **adjustably supported**” (see lines 13-14); however, these claims fail to provide any limitation to recite any link between the “vertical adjustable support” and the adjustability of the drive block. Therefore, the subject matter of the recited claims do not clearly recite if the rear section of the drive block is adjustably supported by the vertical adjustable support or another adjusting mean or unit. Clarification is required in the claims.

Claim 10 recites “the plasticizing cylinder further comprises a plasticizing worm, wherein **the injection unit** further comprises **a drive unit** for a rotational and axial movement of the plasticizing worm” (See lines 1-4); however, claim 1, already, has disclosed a drive unit for axially displacing and pressing the plasticizing cylinder to an injection mold. Therefore, there is an insufficient antecedent basis for the limitation of “a drive unit” in the claim 10 because the claim fails to clearly define if “a drive unit” in the claim 11 refers to the previous citation or the citation is referring to a new limitation.

Claim 11 recites the limitation “the injection unit according **to claim 11**” in the first line. There is insufficient antecedent basis for this limitation in the claim because the claim is dependent to itself. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

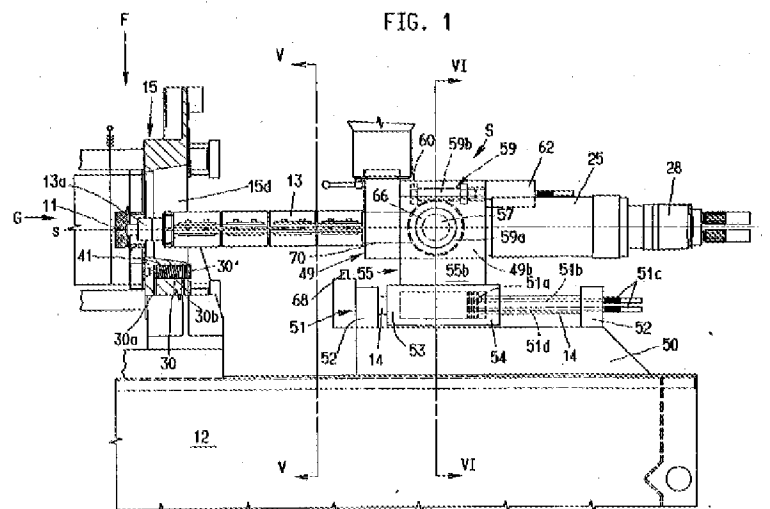
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

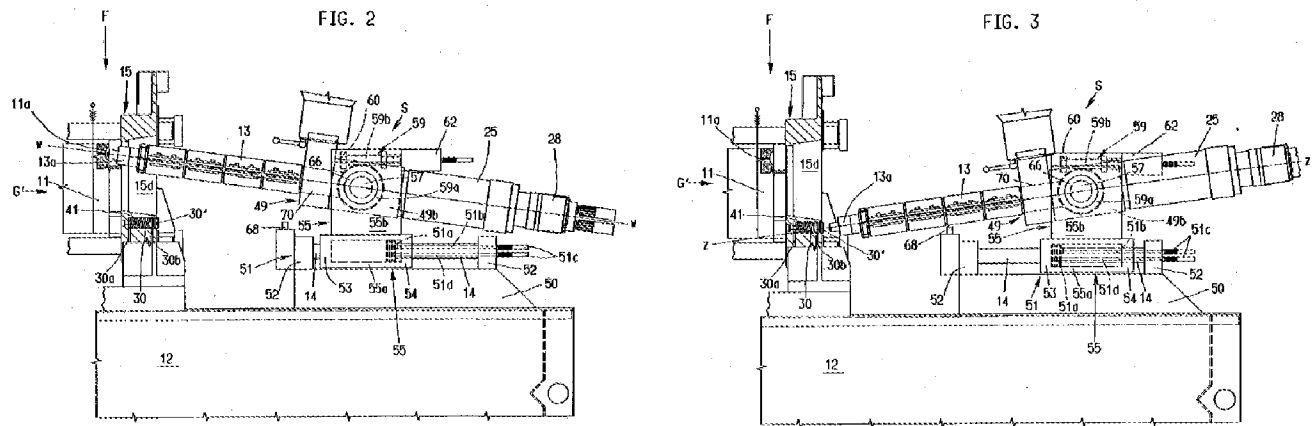
Claims 1-6, 8, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hehl (US 4,863,368) in view of Bielfeldt (US 3,464,091)

Hehl ('368) discloses an injection unit which include a carrier block (49), which has the similar structural functionality as a drive block, moveable on columns (14), which has the similar structural limitation as runners, of the machine frame (50) in an injection molding machine (S) and also include a driving means (54) which is a hydraulic drive cylinder as a drive unit for axially displacing and pressing the plasticizing cylinder (13) to the injection mold, in which the injection unit (S) is supported in an articulated manner by a support

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(55a and 55b) which is moveable on columns (14) of the frame (50) of the injection molding machine and include a driving means (53 and 54) which is a hydraulic drive cylinder for pressing the plasticizing cylinder (13), with a pivotable nozzle tip (13a), to the injection mold unit (F) while achieving a centric sealing connection, and the center section of the carrier block (49) is supported by an adjustable mean such as a worm gear drive (59) as an adjustable mean to adjust the injection molding unit "S" in a vertical direction. (See figure 1; also lines 1-28, column 4 and lines 27-29, column 5)





Further, Hehl ('368) discloses the support (55) is formed as a running gear (53, 54) with an undercarriage (50). (See figure 1 and lines 19-26, column 5)

Moreover, Hehl ('368) teaches the support (55) has two lateral support cheeks (55a, 55b), which provide the plasticizing cylinder (13) with articulated support via rotary pins (57). (See figure 1 and lines 8-26, column 4)

Also, Hehl ('368) teaches the support (55) features, which has a fish joint (55a and 55b) with a joint for a drive axis (s-s). (See figure 1 and lines 8-26, column 4)

Furthermore, Hehl ('368) discloses the active axis (14) of the fish joint (55b) connection is disposed at the center of the injection molding (S) and in parallel to the axis of the plasticizing cylinder (s-s). (See figure 1 and lines 1-4, column 4 and lines 65-68, column 4)

Moreover, Hehl ('368) teaches the active axis (14) is disposed at approximately the frame level (50). (See figure 1)

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Further, Hehl ('368) discloses the support (55) is driven relative to the machine bed (50) in a direction parallel to the injection axis (s-s) by means of a hydraulic drive cylinder ('54) which is formed in a cylinder bore (53) in the support (55) and an axially stationary piston (51a) slid-able there inside. (See lines 8-13, column 5)

Moreover, Hehl ('368) discloses the support (55) in the region between the upper rotary pins (57) and the joint (55a and 55b) and the running gear (53 and 54) is rigidly formed, with deformation under stress being substantially zero, (See figure 1 and lines 19-28, column 4) and wherein the support (55) comprises upper rotary pins and a lower joint, and the support is formed as a running gear.

Also, Hehl ('368) teach the rotary pins (57) are at least approximately disposed in a shared horizontal plane with the axis of the plasticizing cylinder (13), in such a manner that during adjustment of the plasticizing cylinder tip (13a), a pivoting movement can be completed in both a horizontal and a vertical plane. (See figure 1, also, lines 19-28 and lines 53-59, column 4)

Hehl ('368) fail to teach the drive block is positioned in a rear section of the drive unit; however, it generally been recognized to shift the location of the parts when the operation of the device is not otherwise changed which is within the level of ordinary skill in the art, *In re Japikse*, 86 USPQ 70; *In re Gazda*, 104 USPQ 400. Therefore, it would have been obvious for one of ordinary skill in the art at the time of applicant's invention to shift the location of drive block

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part in such a way that the drive block locates in the rear section of the drive unit.

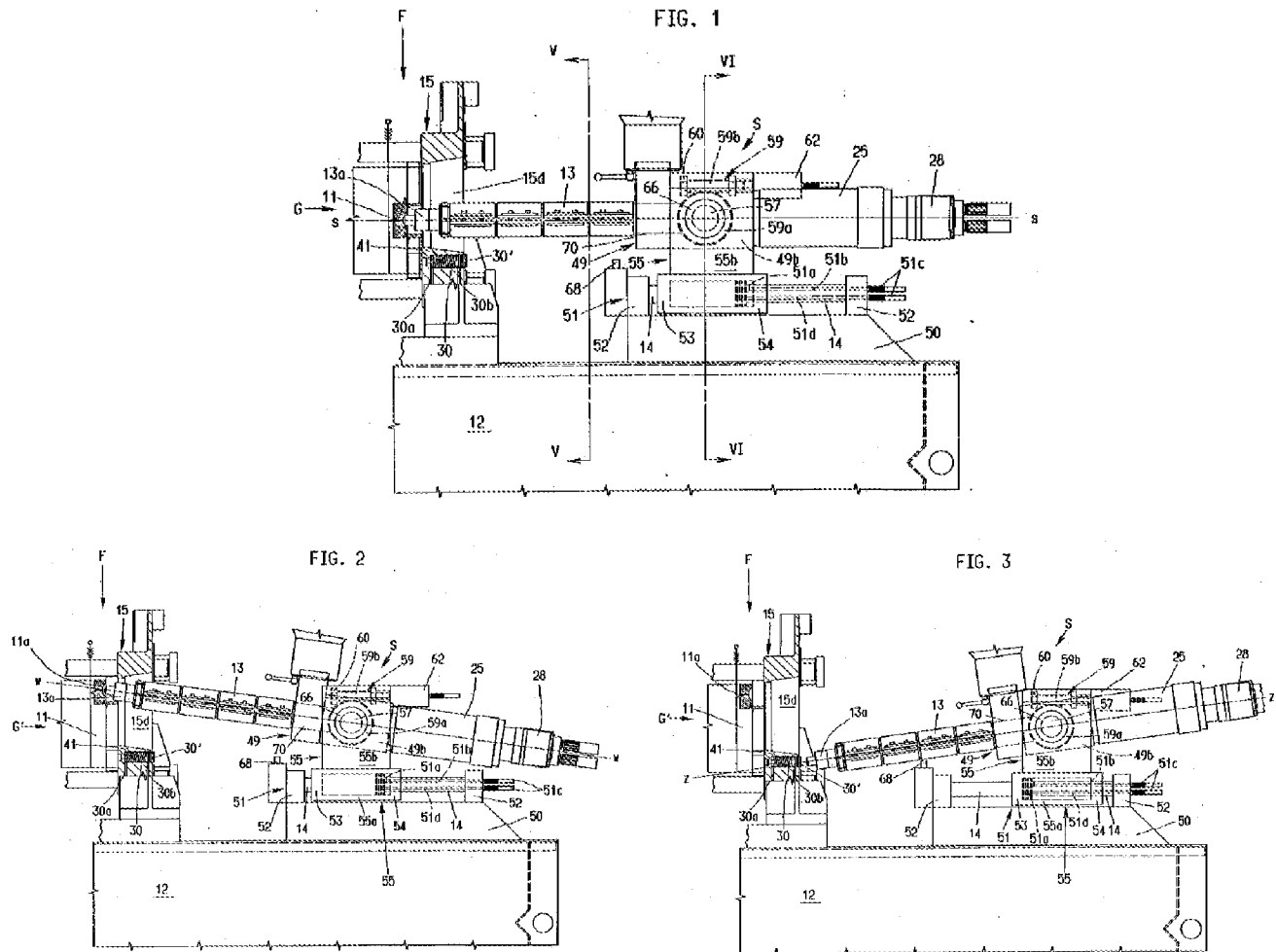
Further, however Hehl ('368) teaches an adjustable mean (59) which is positioned in a rear section of the injection molding unit "S", **Hehl ('368) fails to teach** the adjustable mean is a vertical adjustable support, as claimed in claim 1.

In the analogous art, Bielfeldt (US 3,464,091) teach an injection molding apparatus comprising a shooting unit (4') including a shooting cylinder (4a') as a drive block, a nozzle (4b'), pivot means (10) which is mounted in bearing brackets (10a) carried by slide (10b) which is reciprocable in a direction of (4c') of the turntable (5'), a hydraulic cylinder (11) with a rod (12) and a pin (13) mounted in the slide (10b) as a vertical adjustable support wherein the shooting cylinder (4a') is pivotable about a vertical axis and about a horizontal axis, and wherein the vertical adjustable support (11) moves the shooting cylinder (4a') as a drive block in a vertical direction. (See figure 4)

Therefore, **it would have been obvious** for one of ordinary skill in the art at the time of applicant's invention to modify the injection unit as taught by Hehl (US '368) through providing a vertical adjustable support as an adjustable unit for vertical movement of the plasticizing cylinder in order to further improve controlling the axial position of the nozzle tip with the mold inlets, as suggested by Bielfeldt (US 3,464,091)

Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hehl (US '368) in view of Bielfeldt (US '091) and further in view of Hehl (US 5,007,816)

Hehl ('368) discloses an injection unit which include a carrier block (49), which has the similar structural functionality as a drive block, moveable on columns (14), which has the similar structural limitation as runners, of the machine frame (50) in an injection molding machine (S) and also include a driving means (54) which is a hydraulic drive cylinder as a drive unit for axially displacing and pressing the plasticizing cylinder (13) to the injection mold, in which the injection unit (S) is supported in an articulated manner by a support (55a and 55b) which is moveable on columns (14) of the frame (50) of the injection molding machine and include a driving means (53 and 54) which is a hydraulic drive cylinder for pressing the plasticizing cylinder (13), with a pivotable nozzle tip (13a), to the injection mold unit (F) while achieving a centric sealing connection, and the center section of the carrier block (49) is supported by an adjustable mean such as a worm gear drive (59) as an adjustable mean to adjust the injection molding unit "S" in a vertical direction. (See figure 1; also lines 1-28, column 4 and lines 27-29, column 5)



Further, Hehl ('368) discloses the support (55) is formed as a running gear (53, 54) with an undercarriage (50). (See figure 1 and lines 19-26, column 5)

Moreover, Hehl ('368) teaches the support (55) has two lateral support cheeks (55a, 55b), which provide the plasticizing cylinder (13) with articulated support via rotary pins (57). (See figure 1 and lines 8-26, column 4)

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Also, Hehl ('368) teaches the support (55) features, which has a fish joint (55a and 55b) with a joint for a drive axis (s-s). (See figure 1 and lines 8-26, column 4)

Furthermore, Hehl ('368) discloses the active axis (14) of the fish joint (55b) connection is disposed at the center of the injection molding (S) and in parallel to the axis of the plasticizing cylinder (s-s). (See figure 1 and lines 1-4, column 4 and lines 65-68, column 4)

Moreover, Hehl ('368) teaches the active axis (14) is disposed at approximately the frame level (50). (See figure 1)

Further, Hehl ('368) discloses the support (55) is driven relative to the machine bed (50) in a direction parallel to the injection axis (s-s) by means of a hydraulic drive cylinder ('54) which is formed in a cylinder bore (53) in the support (55) and an axially stationary piston (51a) slid-able there inside. (See lines 8-13, column 5)

Moreover, Hehl ('368) discloses the support (55) in the region between the upper rotary pins (57) and the joint (55a and 55b) and the running gear (53 and 54) is rigidly formed, with deformation under stress being substantially zero, (See figure 1 and lines 19-28, column 4) and wherein the support (55) comprises upper rotary pins and a lower joint, and the support is formed as a running gear.

Also, Hehl ('368) teach the rotary pins (57) are at least approximately disposed in a shared horizontal plane with the axis of the plasticizing cylinder

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(13), in such a manner that during adjustment of the plasticizing cylinder tip (13a), a pivoting movement can be completed in both a horizontal and a vertical plane. (See figure 1, also, lines 19-28 and lines 53-59, column 4)

Hehl ('368) fails to teach the drive block is positioned in a rear section of the drive unit; however, it generally been recognized to shift the location of the parts when the operation of the device is not otherwise changed which is within the level of ordinary skill in the art, *In re Japikse*, 86 USPQ 70; *In re Gazda*, 104 USPQ 400. Therefore, it would have been obvious for one of ordinary skill in the art at the time of applicant's invention to shift the location of drive block part in such a way that the drive block locates in the rear section of the drive unit.

Further, **however**, Hehl ('368) teaches an adjustable mean (59) which is positioned in a rear section of the injection molding unit "S", **Hehl ('368) fails to teach** the adjustable mean is a vertical adjustable support as claimed in claims 9 and 13, and also further, fail to teach the drive unit being supported by a second guide shoe unit including a lower drive bridge positioned on the frame, as claimed in claims 10-12, and the running gear of the drive block include two guide shoe unit on the frame, as claimed in claim 13.

In another analogous art, Bielfeldt (US 3,464,091) teach an injection molding apparatus comprising a shooting unit (4') including a shooting cylinder (4a') as a drive block, a nozzle (4b'), pivot means (10) which is mounted in bearing brackets (10a) carried by slide (10b) which is reciprocable in a direction

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of (4c') of the turntable (5'), a hydraulic cylinder (11) with a rod (12) and a pin (13) mounted in the slide (10b) as a vertical adjustable support wherein the shooting cylinder (4a') is pivotable about a vertical axis and about a horizontal axis, and wherein the vertical adjustable support (11) moves the shooting cylinder (4a') as a drive block in a vertical direction. (See figure 4)

In the analogous art, Hehl (US 5,007,816) teach a carrier section for the injection unit of the injection machine adapted to be transferred to different operating positions, wherein the carrier section comprises an injection unit (s), a supporting member (19), a base member (49) as a drive block, hydraulic actuating cylinders (18), an underside of a base member (49) as a guide shoe unit which adjusts the position of injection unit, a motor (122) and a clamp screw (125), together, as a drive unit, rectangular cast iron frame (117) as rails, and supporting rollers (16) which are rotatably mounted in bars (152) as guide shoe units which are secured to the underside of a base member (49) of the injection unit, wherein the drive block (49) is positioned in the rear section of the drive unit (122 and 125) and also supporting rollers (16) as guide shoes are movable on the rectangular cast iron frame (117) and are designed as rotary spindles. Furthermore, Hehl ('816) discloses that the support (19) and worm gear train (122a) are positioned in the front section of the drive block (49) and the guide shoe units (16) are positioned in the rear section of the injection unit. Further, Hehl ('816) teach the drive block include a plurality of guide shoes which also include four guide shoes which are able to move on two sides of the

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rectangular frame (117) as two guide shoes. (See figure 1 and lines 14-68, column 4)

Therefore, **it would have been obvious** for one of ordinary skill in the art at the time of applicant's invention to modify the injection unit as taught by Hehl (US '368) through providing a vertical adjustable support as an adjustable unit for vertical movement of the plasticizing cylinder in order to further improve controlling the axial position of the nozzle tip with the mold inlets, as suggested by Bielfeldt (US 3,464,091)

Further, **it would have been obvious** for one of ordinary skill in the art at the time of applicant's invention to modify the teachings of Hehl ('368) and Bielfeldt (US '091) by positioning the drive block in a rear section of the drive unit and providing the drive unit by additional guide member which include a lower drive bridge positioned on the frame, and also providing the running gear of the drive block with two guide shoe units of the frame in order to improve the transfer control of the injection unit to various operating positions and also to increase the position flexibility for the movement of the injection unit, as suggested by Hehl ('816)

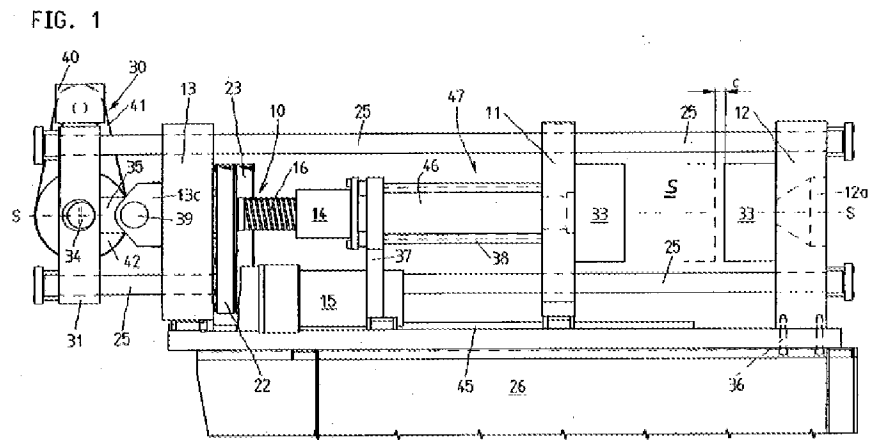
Claims 7 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hehl (US 4,863,368) in view of Bielfeldt (US 3,464,091), and further in view of Hehl (US 5,622,737)

Combined teachings of Hehl ('368) and Bielfeldt (US '091) teach all the structural limitations of an injection unit as discussed above in the rejection of

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claims 7 and 16; **however**, they **fail** to teach the drive mechanism is a servomotor with a spindle overdrive.

In the analogous art, Hehl ('737) teaches a mold-closing unit for use in an injection-molding machine for processing plastifiable materials including a first device (10) for transferring a movable mold carrier (11), and a second device (30) for generating the closing force. (See lines 1-20, column 5)



Further, Hehl ('737) discloses the toggle lever mechanism is driven via a servomotor and the force is determined during the closing cycle. (See lines 19-26, column 3)

Also, Hehl ('737) discloses the first device (10) include a spindle system which serves for transferring the movable mold carrier. (See lines 1-5, column 4)

Furthermore, Hehl ('737) discloses the advantages of employing a servomotor and spindle system for toggle lever mechanism during the closing

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cycle in order to generate a reliable force for transmission of the mold parts.

(See lines 41-45, column 3)

Therefore, **it would have been obvious** for one of ordinary skill in the art at the time of applicants invention to modify the injection molding apparatus taught by combined teachings of Hehl ('368) and Bielfeldt (US '091) through providing a servomotor with a spindle overdrive as a mold closing drive system in order to generate a reliable force for transmission of system during mold closing cycle, as suggested by the Hehl ('737)

Response to Arguments

Applicant's arguments with respect to claims 1-14 and 16 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

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shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Masoud Malekzadeh whose telephone number is 571-272-6215. The examiner can normally be reached on Monday – Friday at 8:30 am – 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin, can be reached on (571) 272-1189. The fax number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance form a USPTO Customer Service

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Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SEYED M. MALEKZADEH/

Examiner, Art Unit 1791

/Steven P. Griffin/

Supervisory Patent Examiner, Art Unit 1791